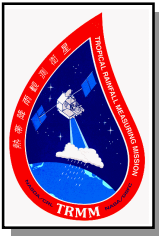# TRMM Flight Operations Monthly Status Review (MSR)
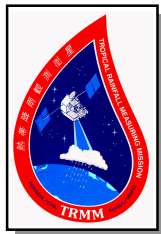
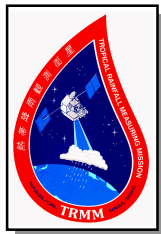February 28th, 2001

FOT Subsystem Overview

- Operations Status
    - Flight Ops Summary - Lou Kurzmiller
    - Electrical & Thermal - Andy Calloway
    - ACS & FDS / C&DH - Mark Fioravanti
    - RCS & RF / Comm - David Corley
    - Power & Deployables - Justin Knavel
    - LIS - Justin Knavel
    - CERES & VIRS - Mark Fioravanti
    - TMI - David Corley
    - PR - Andy Calloway
    - Ground System - Dan Palya
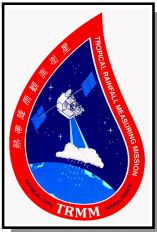   - Upcoming Activities - Andy Calloway

Flight Operations Summary

- Supported 507 SN events in February

    – 1 Yaw Maneuver

    – 7 Delta-V Maneuvers

- 2 Event Rpts; 2 Generic Late Acq Rpts generated

    – ER #225 MOC MP String: Unable to generate TDRS EPV

    – ER #226 NISN: Backup Lanart router down

    – Late Acqs, both with TDRS 171; no data loss
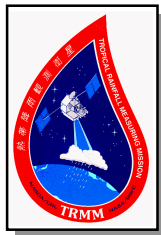
Flight Operations Summary

- Notable Events

  - FOT assisting MD with Mission End-of-Life plan

  - Release 9.0 delivered to String-2

  - Precluded from testing out of SOTA-7(Shuttle/ISTP)

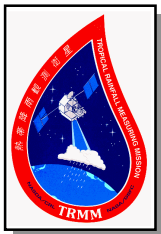   » Expect to resume telemetry shadow events

Flight Ops Summary

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
SPECIAL SPACECRAFT EVENTS AND ACTIVITIES FOR TRMM 2001													
2	8	7											15
2a	1	1											2
2b	0	0											0
2c	0	0											0
3	1	0											1
3a	1	4											5
3b	3	2											5
3c	1	1											2
3d	0	0											0
3e	1	0											1
3f	2	2											4
4	3	1											4
4a	0	2											2
4b	1	1											2
4c	0	0											0
4d	5	0											5
4e	0	0											0
5	3	0											3
5a	0	0											0
5b	0	5											5
5c	0	0											0
TOT:	30	26	0	0	0	0	0	0	0	0	0	0	56

LEGEND

STANDARD CATEGORIES	TRMM-SPECIFIC SUB-CATEGORIES AND EXAMPLES
1 Targets of Opportunity	N/A
2 S/C Maneuvers	DeltaVs **(2)**, 180° Yaw Maneuvers **(2a)**, 90° Yaws **(2b)**, Deep Space Cals **(2c)**
3 Unplanned Commanding	Blind Acqs **(3)**, Patch Loads **(3a)**, Manual DS Ops due to Blind Acqs, MI, etc. **(3b)**, EPVs Fail **(3c)**, VIRS Reset Ops **(3d)**, Anomaly Recoveries **(3e)**, Generic Late Acqs - GCMRs / DS Ops **(3f)**
4 Customer Requests	PR **(4)**, VIRS **(4a)**, LIS **(4b)**, CERES **(4c)**, FSW **(4d)**, AETD **(4e)**
5 Ops due to Celestial Phenomena	UTCF / FS Ops **(5)**, Power Ops - Autospru, TSMs, C/D **(5a)**, Xpdr Offset Ops **(5b)**, Leonids **(5c)**
6 Pre-Launch Testing	N/A
7 L&IOC Operations	N/A
8 EOL Operations	Delta-H Firings **(8)**, Reentry Maneuvers **(8a)**

NOTE: This Record Documents S/C Activities and Does Not Include Other Special Activities Such as Ground System Testing, Simulations, Trending, or New Database, Script, Code, or Procedure Development...
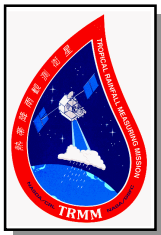
Thermal / Electrical Subsystems

- Thermal subsystem remains nominal with no open issues

- No relay or other Electrical issues at this time

ACS Subsystem

- No change in subsystem status, continues to perform nominally.

- Planned Update for ACS tables for off-pointing the Solar Arrays

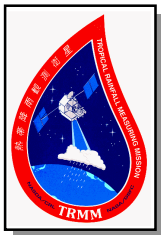   – Contingency should extended PPT operations be required.

ACS Subsystem

- Open CCRs (In order of Priority);

  - CCR #069: New table 85 to match new TDRS-8 continuity limits for other TDRS, and another table 85 to widen the limits after an update failure.

  - CCR #070: New version of Table 61 to incrementally pitch the S/C while in Sun Acq, if Solar Array fails.

  - CCR #005: Correction for Magnetic Field Epoch, will be required for EOL if apogee is greater than 400 km.

  - CCR #065: Update ACS system tables in preparation for EOL activities.

    » Table #73 (Thruster Parameters)

    » Table #90 (Mode Configuration Data for Contingency)

  - CCR #053: ACS FS/W bug
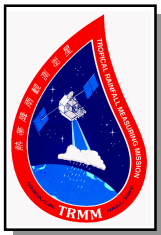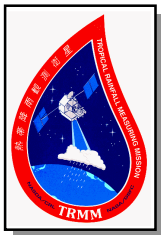
FDS/C&DH Subsystems

- UTCF Status;

  - No Adjustments were performed.

  - Current UTCF value is 31535996.830040 sec

  - Current FS value is x'7BA'

- Open CCRs;

  - CCR #047: Will work with FSW on no-clock software patch activities

  - CCR #048: New on-board DS filter table to record ACE 8-Hz data

  - CCR #077: Create a TSM to monitor the bus voltage in case of a PSIB telemetry failure.
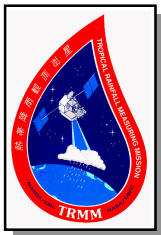
RCS Subsystem

- RCS performed 7 successful Delta-V maneuvers (#273 - #279)

    - Current fuel remaining is 454.202 kg

- EOL estimate remains approximately **July, 2002**, using 200kg of fuel as a baseline.

- No Open RCS Anomaly or Event Reports

- Upcoming Events

    - Begin review of, and training in, Delta-H procedures and scripts for EOL
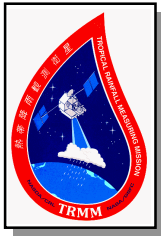
RF Subsystem

- 2 Generic Late Acquisitions (#82-83)

  - 035/163430z T171 event: Locked up @ 163551z. One fwd reacq was sent. All data recovered.

  - 039/132000z T171 event: Locked up @ 132154z. One fwd reacq was sent. All data recovered.

- Frequency offsets (monthly average)

  - Transponder #1 = +693 Hz

  - Transponder #2 = -745 Hz

- No RF Event Reports or MOCRS this month

- Events testing Transponder 2 offset were successful.

- Upcoming Events

  - Offset of transponder 2 frequency likely in March
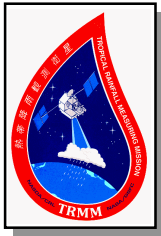
Power Subsystem

- PSIB Telemetry continues to be closely monitored. (No change)

- New TSM to monitor S/C processor current (Essential Bus Voltage)

  - New TSM Table built

  - Test Plan in development

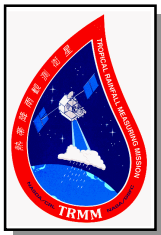- Solar Array Off-pointing analysis on-going

Deployables Subsystem

- Solar array drives and HGA continue to operate nominally.
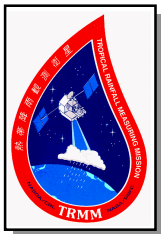
- No other open issues.

LIS Instrument

- Routine MSFC real-time command request performed on 01-038 (February 7th) to reduce packet sequence errors

- No open issues

CERES Instrument

- No change in CERES' status.

  – No Science collection because of DAP failure

  – LaRC may wish to perform gimbal tests and then power Off the instrument.

- Open Issues

  – Data Acquisition Processor (DAP) Telemetry Drop Out and Possible Failure (Anomaly #81)

- Issues on Hiatus

  – Continuous Biaxial operations

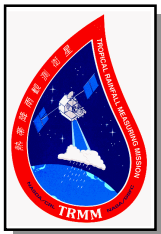 – DR on MP ground system to incorporate new CERES requirements

VIRS Instrument

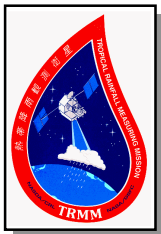- Two set of VIRS Solar Calibrations were performed on 01-043 (Monday, February 12th 2001).
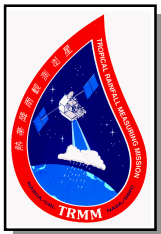
PR / TMI Instruments

- PR LNA Analysis command was performed on 02/22 (01/053)

- No External Calibrations were performed in February

- No new PR interference was reported by NASDA in February

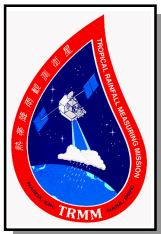- No Open Issues with the TMI instrument

Ground System

- The new System Software Release 9.0 was delivered to String-2. Testers are finishing their evaluation, and pending a successful one-week FOT evaluation, Strings 1, 3 and the SOTA will then be upgraded.

- The backup test and command string in Building 14 SOTA-7 is operational for emergencies and training. Full Mission Planning scheduling and load-building capability still need to be implemented and verified. SOHO mission has concluded its use of the SOTA.

- One IP Conversion Device in the MOC still needs to be upgraded from an OS-2 based system (Programmable Telemetry Processors, PTPs) to a Linux based system (Small Conversion Devices, SCDs).

- PACOR-A secure gateway for file transfers has been established. Operational parallel testing will commence upon delivery of dedicated PC.

Ground System

- Intermittent problems with MP system (integrated print report generation and sub-mnemonic fields) continue.

- SERB has approved installation of some former GRO hardware to the MOC and the SOTA; 4 GB hd to SOTA for trending, 9 GB hd to MAR for trending, two 100 MHz CPUs to MOR/MAR

- The NCC Software Release 3.0 D-8 was delivered on February 20th (01/051) which includes a forecasting upgrade.
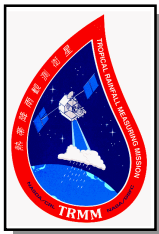
Upcoming Activities

- 0-2 Months

  - Award last two Spacecraft Analyst Certificates

  - Assist MD in completing first draft of TRMM EOL Plan

  - Complete the full Backup Control Center failover implementation including scheduling and mission planning

  - Complete OS-2 (PTP) to Linux (SCD) conversion for the final IP CD

  - Complete System Software Rel 9.0 Checkout then deliver to Strings 1 and 3

  - Start using new FDF Product deliveries which incorporate TDRS-8 data; Start scheduling and testing with TDRS-8

  - Test and validate the new PACOR-A system

  - Test and install new Transponder-2 AOS Offset Relative Time Sequences

  - Install recently acquired GRO equipment - 4GB drive in SOTA, 9GB in MOR

  - Continue to close open CCRs, MOCRs, and MSR Action Items

Upcoming Activities

- 2-3 Months

  – Award Console Analyst certifications to both new employees

  – Complete testing and training with PSIB alternate telemetry patch

  – Complete testing and training with contingency SA Offset configuration

  – Complete analysis for a potential patch which would increase the sampling limit for 'bad' GSACE data to limit affects with ACS

  – Commence DSN/GN FOT training

  – End Of Life Planning, Testing, and Simulations continue